Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. A method for up-interpolating a Bayer mosaic image from input space to output space, said Bayer mosaic image input space comprising a plurality of four-pixel blocks, each pixel in said blocks being one of three different colors with ~~one of~~ two of said four pixels in each block being a dominant color and the other two of said four pixels being non-dominant colors, said method including the steps of:
reading a two dimensional color plane of said Bayer image for each said color;
mapping said pixels of said dominant color from said input space to said output space by:
multiplying each coordinate of said input space by $1/\sqrt{2}$; and
scaling coordinates of said input space to a normalized coefficient kernel by multiplying said coordinates by $1/\sqrt{2}$;
mapping said pixels of said non-dominant colors by multiplying each ~~ordinate~~coordinate ~~—~~of said input space by 1/2;
for each color, convolving said input space pixels with a coefficient kernel for each color; and
writing ~~said~~ all mapped pixels to a storage location.
2. The method of claim 1 wherein said three different colors are red, green and blue.
3. The method of claim 1 or 2 wherein said dominant color is green.
4. The method of claim 1 wherein said coefficient kernel is the same for said two non-dominant colors but different for said dominant color.
5. The method of claim 1 wherein~~, for said dominant color,~~ said mapping step for said dominant color further includes sampling a 4x4 pixel block.
6. An apparatus for up-interpolating a Bayer mosaic image from input space pixel values to output space pixel values, said Bayer mosaic image comprising a plurality of four-pixel blocks, each pixel in said blocks being one of three different colors with ~~one of~~ two of said four pixels in each block being a dominant color and the other two of said four pixels being non-dominant colors, said apparatus comprising:
an input buffer for each color for storing said input space pixel values;

a coefficient kernel for each color, said coefficient kernel for said dominant color being normalized;

processing means configured for :

mapping said pixels of said dominant color from said input space to said output space by multiplying each coordinate of said input space by $1/\sqrt{2}$;

scaling coordinates of said input space to a normalized coefficient kernel by multiplying said coordinates by $1/\sqrt{2}$; and

mapping said pixels of said non-dominant colors by multiplying each coordinate of said input space by 1/2;

a convolve unit for each color for convolving said input space pixel values with said kernel coefficients of each color; and

an output buffer for storing mapped pixel values.

7. The apparatus of claim 6 further comprising processing means for sampling a 4x4 pixel block for said dominant color.

8. A method of interpolating a Bayer image of red, green and blue pixels from an input space to an output space, the method including the steps of:

receiving the Bayer image; and

mapping each of the input space colors to the output space in accordance with the following equations:

$x' = (x/ops) + k_1$

$y' = (y/ops) + k_2$

where x,y is a coordinate in the output space, x'y' is the coordinate in the input space, ops is the number of pixels in the output space per input space sample, and $k_{1,2}$ are either 0 or-0.5 depending on the color and ~~the~~ a desired relative rotational orientation of the image.

9. The method of claim 8 wherein, for the green pixels in the input space, each ~~ordinate~~coordinate of the input space is multiplied by $1/\sqrt{2}$.

10. The method of claim 8 wherein, for the green pixels in the input space, each coordinate of the input space is multiplied by $1/\sqrt{2}$.

11. A method of sampling a Bayer image having two dimensional planes of red, green and blue pixels, the method including the steps of:

rotating the green plane by 45°;

sequentially sampling an m x m pixel block of the rotated plane, where m is an integer greater than 1;

providing ~~an~~ addresses for the m^2 samples by determining a starting address for a first of the samples and thereafter applying a predetermined fixed sequence of offsets to obtain the addresses of the remaining samples.

12. The method of claim 11 wherein the step of determining the starting address is responsive to ~~the~~ a relative rotational orientation of the image.

13. The method of claim 11 wherein m=4 and there are sixteen offsets.

14. An apparatus for sampling a Bayer image having two dimensional planes of red, green and blue pixels, the apparatus comprising:
input means for rotating the green plane by 45°;
processing means for sequentially sampling an m x m pixel block of the rotated plane, where m is an integer greater than 1;
address means for providing ~~an~~ addresses for the m^2 samples by determining a starting address for a first of the samples and thereafter applying a predetermined fixed sequence of offsets to obtain the addresses of the remaining samples.